

REMARKS

This responds to the Office Action mailed on August 9, 2005, and the references cited therewith. Reconsideration is respectfully requested.

Claims 1, 2, 6-8, 12, 14-16, 22, 23 and 27 are amended, no claims are canceled; as a result, claims 1-29 are now pending in this application.

Allowable Subject Matter

Claims 3, 4, 8-10, 12, 13, 16, 23-25 and 27 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In the office action, claim 2 has neither been rejected to by the Examiner nor has it been stated to be allowable by the Examiner. Per discussion with the Examiner and Applicants' attorney Gregory J. Gorrie (Reg. No. 36530) on September 04, 2005, the Examiner stated that claim 2 should have been objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of claim 1. Based on this, claim 2 has been written in independent form to include the limitations of claim 1 and is believed to be in condition for allowance.

Claims 3 and 4, which were stated to be allowable, are believed to be in condition for allowance at least because of their dependency on claim 2, which is believed to be in condition for allowance.

Claims 8, 12, 16, 23 and 27 have been amended and rewritten in independent form including all of the limitations of their respective base claim and any intervening claims and are therefore believed to be in condition for allowance. Claims 9, 10, 13, 24 and 25 are believed to be in condition for allowance at least because of their dependency on now independent claim 8, 12 or 23.

§102 and §103 Rejection of the Claims

Claims 1, 5, 7, 11, 14, 15, 17, 22, 26 and 28 were rejected under 35 U.S.C. § 102(b) as being anticipated by Nishiguchi et al. (U.S. 6,535,159). Claims 6, 18-21 and 29 were rejected

under 35 U.S.C. § 103(a) as being unpatentable over Nishiguchi et al. in view of Foss et al. (U.S. 4,654,622).

Claim 1, as amended, is directed to a system that includes an active-array antenna for generating a high-power millimeter-wave wavefront to deter an intruder within a protected area. The system also includes one or more reflectors positioned within the protected area to help retain energy of the wavefront within the area. The active-array antenna has a plurality of active array elements, and each active array element includes a power amplifier and a transmit antenna.

Nishiguchi does not disclose an active array antenna. Nishiguchi's antenna (element #9 in Nishiguchi's FIG. 1) is neither active, nor is it an array. Nishiguchi only states that "by forming the antenna 9 into an array *shape*, it is possible to expand the releasing area of the electric wave, and also to limit the irradiation range of the electric wave to approximately several degrees." (See Nishiguchi column 22, lines 61 - 64). It is unclear what is meant by "array shape", however an array shape does not imply an array of individual antenna elements. Applicants find no teaching, suggestion or motivation in Nishiguchi for using an active array antenna having a plurality of active array elements in which each active array element includes a power amplifier and a transmit antenna, as recited in Applicants' amended claim 1.

Applicants' claim 6, further distinguishes over the cited references by reciting that the active array elements comprise semiconductor wafers arranged together on a substantially flat surface and that each semiconductor wafer comprises one or more power amplifiers and a transmit antenna to generate the high-power wavefront.

Foss has been cited by the Examiner for apparently disclosing a millimeter-wave array. Foss's array, however, is a many element detector/sensor for receiving, not transmitting. In Foss, each element of the array does not have its own transmit antenna nor does it have its own power amplifier (see FIGs. 4 and 7 of Foss). Foss states that the focal plane is sensitive to millimeter-wave and IR radiation, which means that is configured only to receive these frequencies (see column 2, lines 28 - 29). Furthermore, Foss further states that the focal plane is constructed on a single silicon wafer (see column 2, lines 29 - 31). Applicants' claim 6, for example, recites that the active array elements comprise a plurality of semiconductor wafers.

In view of the above, Applicants submit that the elements of amended claims 1 and 6 are not shown in either Nishiguchi or Foss, either separately or in combination.

Applicants' claim 7, as amended, for example, also distinguishes over the cited references by reciting a system with an active array antenna. Applicants' claim 14, as amended, for example, further distinguishes over the cited references by reciting a system with a passive reflect-array antenna. The passive reflect array is recited to have a plurality of passive antenna elements to reflect (i.e., receive and to retransmit) an incident millimeter-wave signal to generate the wavefront. None of the cited reference teach, suggest or motivate a passive reflect array antenna.

Claim 22, as amended, also distinguishes over the cited references by reciting a method of protecting an area that includes detecting a presence of an intruder, and generating a high-power millimeter-wave wavefront with one of either an active-array antenna or a passive reflect-array antenna in response to the detection of the intruder to deter the intruder. Claim 22 recites that when the generating is performed with an active-array antenna, the method comprises generating the wavefront with a plurality of active array elements, each active array element including a power amplifier and a transmit antenna. Claim 22 further recites that when the generating is performed with a passive reflect-array antenna, the method comprises generating the wavefront with a plurality of passive antenna elements by receiving and to retransmitting a millimeter-wave signal to generate the wavefront.

In view of the above, Applicants submit that the rejection of independent claims 1, 7 and 22 under 35 U.S.C. § 102 has been overcome and that claims 1, 7 and 22 are allowable over the cited references. Applicants further submit that the rejection of claims 5, 6, 11, 14, 15, 17 – 21, 26, 28 and 29 under either 35 U.S.C. § 102 or 35 U.S.C. § 103 has also been overcome and that claims 5, 6, 11, 14, 15, 17 – 21, 26, 28 and 29 are allowable at least because of their dependency on independent claim 1, 7 or 22.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney Gregory J. Gorrie at (480) 659-3314 or Applicant's below-named representative at (520) 794-4143 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 50-0888.

Respectfully submitted,

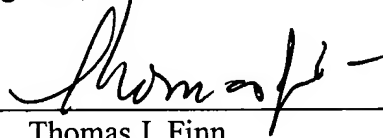
By their Representatives,

Raytheon Company
P.O. Box 902
El Segundo, CA 90245

Date

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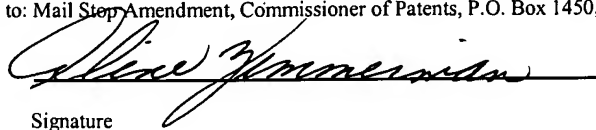
Thomas J. Finn

Reg. No. 48,066

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 23 day of October, 2005.

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